REMARKS

The specification has been amended to correct errors and improve its form. Claims 1-23 have been amended to correct errors, improve their form, and more clearly define the invention. Claims 1-23 are pending, with claims 1, 11, and 21-23 being independent. Claims 1, 4, 11, 14, and 21-23 were rejected. Claims 2-3, 5-10, 12-13, and 15-20 were objected to. No new matter is presented in this Amendment.

Claim Rejections Under 35 USC 102

Claims 1, 4, 11, 14, and 21-23 were rejected under 35 USC 102(b) as being anticipated by Tzannes et al. (Tzannes) (PCT International Application Publication No. WO 01/97387 A1). This rejection is respectfully traversed.

It is submitted that Tzannes does not disclose the feature now recited in independent claim 1 that "when a cycle forming group is found in the parity check matrix, [a parity check matrix adjustment unit] generates an adjusted parity matrix without a cycle forming group therein by replacing the value of 1 of at least one element of the four elements of the cycle forming group with a value of 0, and replacing the value 0 of another element in the same row or the same column as the one element of the four elements with a value of 1."

The most relevant portion of Tzannes appears to be paragraph [0052] of Tzannes referred to by the Examiner which states as follows:

> Next, the cycles, which can be of any length, can be eliminated by searching through the parity check matrix and reassigning the branches that form the cycles with the other branches so that the cycles are removed. Reassigning the branches in a manner consistent with the looping step discussed above, however, may be computationally complex so it is possible to simply remove the branches from the cycles and allowing some of the nodes and the bits to have an unequal number of connections without impacting the performance of the system.

A cycle consists of four branches in a Tanner graph of a code corresponding to four elements having a value of 1 respectively positioned at vertexes of a rectangle in a parity check matrix for the code. Attached hereto is a marked-up copy of FIG. 2 of Tzannes in which the four branches of a cycle shown by the heavy lines in the Tanner graph in the upper part of the figure.

A rectangle has been drawn in the parity check matrix 140 in the lower part of the figure. The four elements having a value 1 at the vertexes of this rectangle respectively correspond to the four branches in the Tanner graph as indicated by the lines between the upper and lower parts of the figure.

Paragraph [0052] of Tzannes states that cycles are removed by "reassigning the branches that form the cycles with the other branches so that the cycles are removed," or by "simply remov[ing] the branches from the cycles." In order to remove a branch from a Tanner graph, the value of 1 of the element in the parity check matrix corresponding to the branch to be removed is replaced with a value of 0.

However, it is submitted that neither paragraph [0052] of Tzannes nor any other portion of Tzannes discloses "replacing the value of 1 of at least one element of the four elements of the cycle forming group with a value of 0, and replacing the value 0 of another element in the same row or the same column as the one element of the four elements with a value of 1" as now recited in claim 1, particularly in light of the vague language "reassigning the branches that form the cycles with the other branches so that the cycles are removed" paragraph [0052], as well as the caveat in paragraph [0052] that "[r]eassigning the branches in a manner consistent with the looping step discussed above, however, may be computationally complex so it is possible to simply remove the branches from the cycles."

Furthermore, it is submitted that Tzannes does not disclose the following features now recited in independent claims 11 and 21-23 that are similar to the feature of claim 1 discussed above:

> Claim 11: "replacing the value of 1 of at least one element of the four elements of the cycle forming group with a value of 0, and replacing the value 0 of another element in the same row or the same column as the one element of the four elements with a value of 1."
>
> Claim 21: "replacing the value of 1 of at least one element of the four elements of the cycle forming group with a value of 0, and replacing the value 0 of another element in the same row or the same column as the one element of the four elements with a value of 1 to generate an adjusted parity check matrix without a cycle forming group therein."
>
> Claim 22: "a parity check matrix modifier that . . . replaces the first value of at least one element of the four elements of the cycle forming group with the second value, and replaces the

> second value of another element in the same row or the same column as the one element of the four elements with the first value to generate a modified parity check matrix without a cycle forming group therein."
>
> Claim 23: "replacing the first value of at least one element of the four elements of the cycle forming group with the second value, and replacing the second value of another element in the same row or the same column as the one element of the four elements with the first value to generate a modified parity check matrix without a cycle forming group therein."

It is submitted that claims 4 and 14 depending from claims 1 and 11 are patentable over Tzannes for at least the reasons discussed above that claims 1 and 11 are patentable over Tzannes.

For at least the foregoing reasons, it is respectfully requested that the rejection of claims 1, 4, 11, 14, and 21-23 under 35 USC 102(a) as being anticipated by Tzannes be withdrawn.

Allowable Subject Matter

The applicants appreciate the Examiner's indication that claims 2-3, 5-10, 12-13, and 15-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, it is submitted that independent claims 1 and 11 from which claims 2-3, 5-10, 12-13, and 15-20 depend are now also allowable for at least the reasons discussed above, and accordingly it is respectfully requested that the objection to claims 2-3, 5-10, 12-13, and 15-20 be withdrawn.

Conclusion

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with the filing of this paper, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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